

SEISMIC SAFETY COMMISSION

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**Seismic Safety Commission
Revised Minutes of Regular Meeting
October 12, 2000
Hilton Glendale
100 West Glenoaks Boulevard
Glendale, California**

Members Present

Donald O. Manning, Chairman
Daniel Shapiro, Vice Chairman
Andrew Adelman
Senator Richard Alarcon
Jerry C. Chang
Bruce R. Clark
William L. Gates
Scott Haggerty
Jeff Johnson
Stan Moy
Ashok S. Patwardhan
Pat Snyder

Members Absent

Douglas E. Mochizuki

Staff

Richard McCarthy
Henry Sepulveda
Fred Turner

I. CALL TO ORDER/ROLL CALL

The meeting of the Seismic Safety Commission was called to order by Chairman Donald O. Manning at 8:30 a.m.

II. CHAIRMAN'S REMARKS

Chairman Manning explained that the purpose of the hearing on gas shutoff valves was informational only, and the Commission would not be taking any action. He noted the Seismic Safety Commission is an advisory body, not a regulatory agency.

Chairman Manning stated that as part of this fact-finding process, the Commission is interested in information on existing regulatory policies regarding gas shutoff valves, performance during earthquakes, recommendations and opinions. He asked presenters to focus on state policy issues for the Commission's consideration in formulating recommendations for the Governor, Legislature, and local governments. Chairman Manning suggested keeping all testimony nontechnical and policy-oriented.

Chairman Manning asked all presenters to provide the reporter with a business card so names and titles can be properly identified. He noted time was limited, and encouraged speakers to be concise and nonrepetitive. He

requested that people wishing to speak fill out and return speaker identification cards to the staff. Chairman Manning welcomed interested parties to submit written materials as well.

Chairman Manning emphasized that the Commission does not intend to evaluate or endorse any specific products, designs, or technology. Instead, the Commission's role is to assess and help implement cost-effective earthquake loss reduction policies.

III. APPROVAL OF MINUTES

September 14, 2000

ACTION: Commissioner Gates made a motion, seconded by Commissioner Haggerty, that:

The Commission approved the minutes of the September 14 meeting as proposed.

* Motion carried, 9 - 0 (Commissioners Alarcon, Johnson, Mochizuki, and Snyder absent during voting).

IV. EXECUTIVE DIRECTOR'S REPORT

Update on Loss Reduction Plan

Executive Director Richard McCarthy noted that the Office of Emergency Services has offered the Commission an assistance grant of \$40,000 to help revise and update the *California Earthquake Loss Reduction Plan*. The Commission issued a request for proposals (RFP) to select a contractor to assist in this work, and responses are being submitted. Mr. McCarthy said the project will get underway soon, and commissioners can expect to receive their working group assignments within the next few weeks. He recommended that the Chairman appoint a committee to assist the staff in reviewing the RFP responses and awarding the contract to the winning proposal. He noted these tasks need to be completed before the next Commission meeting in December.

ACTION: Commissioner Shapiro made a motion, seconded by Commissioner Haggerty, that:

The Commission authorize the staff to proceed as proposed.

* Motion carried, 9 - 0 (Commissioners Alarcon, Johnson, Mochizuki, and Snyder absent during voting).

Contracts

Mr. McCarthy reported that the contract to review the Pacific Earthquake Engineering Research Center is being reviewed by University of California at Berkeley, and once it is approved, Commissioner Clark will reactivate the Research Committee to begin reviewing that project. Mr. McCarthy noted the contract was extended to two years.

New Insurance Commissioner

Mr. McCarthy noted the Governor appointed a new Insurance Commissioner on September 18, Judge Low, to replace former Commissioner Quackenbush. In keeping with the Commission's decision to support the Quake Ready video, the staff has been working with representatives from the Attorney General's Office, Department of Insurance, Office of Emergency Services, Department of Education, the Assembly Insurance Committee, and the Senate Insurance Committee. The Attorney General's Office advised the Commission to draft a letter on behalf of the State of California to the developer of the educational videos to arrange for their use in California

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schools. Mr. McCarthy asked Commissioner Gates and Mr. Sepulveda to work together to develop a draft for the Commission's review at the December meeting.

December Meeting Plans

Mr. McCarthy noted the Commission's next meeting is scheduled for December 7 in Napa, the location of a recent earthquake. He said the meeting will feature presentations from local and state government representatives, OES, FEMA, CEA, and local schools on their experiences and lessons learned from the earthquake. He added that reception will be held the evening of December 6 to celebrate the Commission's 25th anniversary, and the staff will be sending more information about that event.

Commissioner Adelman asked what time the December meeting events will take place. Mr. McCarthy said the December 7 meeting will begin at 8:30 a.m. and conclude by about 2:00 p.m., and the December 6 reception will begin at 5:00 p.m.

V. COMMITTEE REPORTS

Planning and Budget Committee

Commissioner Gates said the Commission's budget after the first quarter of the fiscal year shows a surplus of approximately 10 percent. He noted that although OES funds will be coming in, they will be offset by expenses, so are expected to produce no net gain for the Commission. Commissioner Gates reported that all categories are currently on budget.

Strong Motion Instrumentation Advisory Committee (SMIAC)

Commissioner Patwardhan noted that in past years, former Commissioner Bruce Bolt served as a bridge between the Seismic Safety Committee and the state's Strong Motion Instrumentation Program (SMIP), and he commended Professor Bolt for his leadership.

Commissioner Patwardhan said the Commission's Strong Motion Instrumentation Advisory Committee is charged with advising the state in three major areas: setting policy with respect to the location of instruments and activities of the program, program funding, and utilization of information by the scientific community and public. Commissioner Patwardhan suggested that the Commission plan for a more detailed discussion of the SMIP at a future meeting. He welcomed e-mail input and suggestions from commissioners regarding future directions for the program.

Commissioner Patwardhan identified the following issues for discussion: accelerating the program to bridge gaps in the present network, participation by private organizations, sources of funding other than the current building permit fees, and collaborative activities with other agencies.

Chairman Manning asked the staff to include discussion of the SMIP in a future meeting agenda.

Commission Web Page

Commissioner Johnson reported that he met earlier that week with representatives of San Diego State University to review the status of the Commission's Web page. He encouraged commissioners to take advantage of an opportunity to view a test Web page created by San Diego State at www.seismic.ca.gov/test/test.html. He noted the format was designed for ease of use and reflects current trends in Website design.

Commissioner Johnson said he provided Mr. McCarthy with a written report from San Diego State containing a number of recommendations, and copies will be provided for commissioners. He noted the recommendations include speeding up the download time. He added that he hoped to develop some concrete recommendations for improvements to the Web page and ways to increase commissioner involvement in providing content.

Commissioner Johnson suggested that the staff bring the new digital camera to each Commission meeting to produce images for the Web page.

VI. LEGISLATIVE REPORT

Director of Legislation Henry Sepulveda noted that at the last meeting, Commissioner Haggerty asked the staff to check into the status of implementation of AB 880, a bill requiring OES to set up telecommunications translators to allow emergency responders on various radio frequencies to communicate with each other. Mr. Sepulveda reported that AB 880 was signed in 1999 and became effective on January 1, 2000. However, the bill contained a provision that allowed OES to implement its provisions only to the extent specific funds were appropriated for those purposes. Because there were no funds included in the bill or budget acts, no progress has been made in acquiring equipment.

Mr. Sepulveda said OES representatives advised the Commission that OES submitted a budget change proposal for next fiscal year to fund purchase of service vehicles to be equipped with telecommunications devices. He noted the outcome of the BCP will not be known until January, 2001, and the purchase then needs to be included in the Budget Act.

Mr. Sepulveda reviewed the status of Commission-sponsored bills. He reported that two of the five sponsored bills made their way to the Governor's desk. AB 2791, giving "stop-work" authority to DSA, was signed and will go into effect in January. SB 1871 (Alarcon), establishing a statewide disaster recovery plan, was vetoed by the Governor. Mr. Sepulveda said the staff understands the veto was based on fiscal rather than program concerns. He noted the Department of Finance has a general policy of opposing any bill appropriating funds not already included in the current year's Budget Act.

Commissioner Shapiro asked about the procedure for getting funds into next year's Budget Act so the bill would have a better chance of being signed. Mr. Sepulveda responded that the normal approach would be through a budget change proposal process. Once approved, the funds could be included as a line item in the Budget Act and implemented through separate legislation.

Commissioner Haggerty expressed his disappointment in the veto of SB 1871, given California's \$14 billion surplus and the benefit the bill would have for public safety. Commissioner Snyder echoed Commissioner Haggerty's disappointment. She attested to California's need for a mechanism to enable the state to recover from all disasters more quickly. She expressed hope that the revised proposal will succeed.

Mr. Sepulveda said the staff plans to develop a series of legislative proposals for consideration by the Legislative Advisory Committee, and SB 1871 will be included. He noted the committee will then bring recommendations to the Commission for legislative activities in the coming session.

Mr. Sepulveda noted the written staff report provides information on the status of various bills the Commission was watching. He said three of the four SB 1953 were approved by the Governor. These bills allow five-year extensions for certain hospital facilities that meet specific requirements; use of temporary facilities during remodeling; and up to 17-year extensions for hospitals in Zone 3, provided they submit site-specific geologic reports and obtain concurrence from the California Division of Mines and Geology (CDMG).

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Mr. Sepulveda reported that the bill regarding relocatable classrooms was approved, as was AB 2902, technical amendments to the Alquist Seismic Safety Act. AB 424, allowing design-build school construction, was vetoed.

Mr. Sepulveda noted the Governor's veto message for SB 1871 was included in the handouts.

Commissioner Chang noted SB 1729 (Hayden) was also vetoed by the Governor, and he asked about the reasons for the veto. Mr. Sepulveda said the Governor's rationale was that the requirements for geologic reports on new school sites are already addressed in regulations, so no new legislation was needed. He referred to the staff report for a more detailed explanation.

VII. HEARING ON SEISMIC GAS SHUTOFF VALVES

Valve Manufacturers

Chairman Manning noted the first presentations would focus on excess flow valve technology and shake-activated devices. He invited Mr. Neill Anderson, Magne-Flo, Inc., and Mr. Philip M. Vermeulen to address the Commission.

Mr. Anderson thanked the Commission for providing an opportunity to provide information on gas shutoff valves. He said his company, Magne-Flo, Inc., is a Santa Clarita-based manufacturer of excess flow valves and other gas control products. Unlike shake-triggered devices, he explained, excess flow valves are designed to shut off gas when flow exceeds a specific level. The shutoff can be limited to a certain area, with the rest of the system functioning normally if there are no leaks. Mr. Anderson said an excess flow valve serves a function comparable to a circuit-breaker in an electric system. In addition, because the valves will not reopen until the problem has been repaired, they can also assist in diagnosing and fixing leaks.

Mr. Anderson noted excess flow valves can be installed at each appliance, at the meter, or near the main line. Excess flow valves can be mechanical, with a spring-and-ball operation, or magnetic, such as the devices produced by Magne-Flo. Mr. Anderson pointed out that a significant advantage of excess flow valves is their low cost, typically \$5 to \$10 retail. The valves require no power source and are easy to install.

Mr. Anderson noted that excess flow valves can be caused by earthquakes or other disturbances to the gas system. He said the devices are CSA-approved and mandated for LP gas barbecues nationwide and for recreational vehicles in some states. In July of 2000, California's State Architect incorporated the CSA standards into the California Building Standards Code, so excess flow valves are now required for certain installations.

Commissioner Patwardhan asked how many manufacturers produce excess flow valves. Mr. Anderson said there are some companies that make valves for specific industries, but there are only three or four manufacturers of valves for widespread applications.

Commissioner Shapiro asked if excess flow valves need to be reset manually. Mr. Anderson responded that excess flow valves have no manual reset. Instead, the valve works on a pressure differential, and there is no way to manually override its function.

Commissioner Manning asked how a consumer would know which excess flow valve would be appropriate for a particular appliance like an oven. Mr. Anderson said products are marked by application, matching the size of gas connector with the valve. He added that the valves come in two sizes, and all products are color-coded to differentiate their flow rates and applications.

Mr. Vermeulen thanked the Commission on behalf of the California-approved earthquake-actuated automatic gas shutoff valve (EQV) manufacturers for conducting this important hearing. He stated that the EQV manufacturers are committed to working with the Commission and Legislature toward the common goal of ensuring EQV protection for every structure in California with gas service. Mr. Vermeulen recommended making the installation of EQVs the state's highest priority for improving public safety, mitigating loss of life due to natural gas fires and leaks after earthquakes, and reducing demand on emergency and utility services during the disaster response period.

Mr. Vermeulen summarized the EQV manufacturers' suggestions for implementing this effort, and referred to his letter for more detailed discussions of each step. He said the manufacturers suggest an affirmation by the Seismic Safety Commission recommending that the Legislature make installation of EQVs one of highest priority action items for the 2001 legislative session. This affirmation should include a clear, concise document the Legislature can approve as California's EQV plan. Mr. Vermeulen said the manufacturers recommend installation of EQVs on every structure in California with gas service, starting with residential buildings. The manufacturers suggest mandating EQVs on all new homes starting January 1, 2002. In addition, the mandate should apply to schools, hospitals, and other public facilities. Next in line should be retrofitting of existing homes, with a phased-in approach to ensure an adequate supply of EQVs to meet demand.

Mr. Vermeulen noted that an integral component of a mandatory retrofit requirement must include development of a statewide public education program on the costs and benefits of installing EQVs. He pointed out that typical installation costs about \$350, far less costly than replacing a home or risking a life. Mr. Vermeulen said the EQV manufacturers also recognize the importance of having enough trained installation specialists and inspectors. He recommended working closely with plumbing, heating, and cooling contractors and their unions, and suggested using gas utility companies to conduct all inspections. Mr. Vermeulen noted the mandate should be extended to commercial and industrial buildings, starting with new construction, followed by existing buildings. The EQV manufacturers recommend setting a definite deadline for retrofit compliance and using Standard Industrial Classification codes to identify and prioritize specific structures. In order to achieve the goal of retrofitting all buildings in California with EQVs, the manufacturers recommend the Legislature use intent language similar to that found in AB 1756 (Scott).

Mr. Vermeulen said the manufacturers also suggest that the state adopt the City of Los Angeles' retrofit ordinance, with one exception: a requirement that a valve be installed prior to the close of escrow rather than waiting up to one year. Mr. Vermeulen noted this requirement is similar to the existing requirement for retrofit of earthquake water heater straps before the close of escrow.

Mr. Vermeulen suggested implementing tax credit incentives to motivate compliance. He said the manufacturers recommend that the Legislature introduce a bill dealing solely with tax credits for the installation of EQVs. He noted this approach would be preferable to including these provisions in a more general retrofit bill because if one bill fails, the other still has a chance of moving forward.

Mr. Vermeulen stated that some homeowner insurance carriers provide customers with a 5 percent rebate for installing EQVs, and he recommended that all property insurers offer the same rebate program.

In response to Mr. Anderson's presentation on excess flow valves, Mr. Vermeulen emphasized that the use of excess flow devices as stand-alone gas safety devices would defeat the purpose of fully protecting the health and safety of the public. He explained that excess flow devices do not work unless a pipeline breaks and a 90 percent or greater flow reduction occurs. Mr. Vermeulen said EQVs provide greater protection because they are preset to trip at ground motions of 5.4 magnitude or greater; excess flow devices do not work unless the gas line

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completely breaks. Mr. Vermeulen expressed his opinion that installing excess flow devices as a seismic safety measure would be irresponsible as a matter of policy.

Mr. Vermeulen recommended ensuring that all valves to be used under the proposed program fully comply with the American Society of Civil Engineers (ASCE) Standard 25-97.

Commissioner Chang expressed concern about the cost burden on homeowners if a statewide mandate is imposed. Because some areas of California do not have strong earthquakes, he questioned the need for a statewide mandate.

Commissioner Chang asked about the difficulty and cost of resetting the valves, especially during a period of numerous aftershocks.

Commissioner Chang questioned whether shutoff valves should be installed in each individual building or in the common supply lines from the utility companies. He noted mobilehome parks are required to have shutoff valves at the point where utility services come to the park. He added that it might be better for the utility companies to absorb the cost of installing valves in their main supply lines and then pass those costs on to customers as part of their rates.

Mr. Vermeulen emphasized that gas shutoff valves are a cost-effective way to save lives and property in California. He pledged to work with the Commission and the Legislature to develop a workable retrofit program. Mr. Vermeulen added that the only way to be assured that valves will work properly is to have devices on each structure. Commissioner Chang observed that damage would also be avoided by shutting off the main supply line. He recommended investing this option as a more cost-effective alternative.

Commissioner Haggerty asked if Mr. Vermeulen had approached homeowner insurance carriers about providing premium reductions or rebates for customers who installed gas shutoff valves. Mr. Vermeulen said his letter describes their response. He said some companies provide a 5 percent rebate, and discussions are underway with other carriers.

Senator Alarcon commended Mr. Vermeulen for his work to unite the gas valve manufacturers. He said he had a number of concerns about the manufacturers' presentations. First, he observed, gas is an essential service, and mandating a new improvement would require an extensive educational effort, infrastructure improvements, and relationships among utilities and other agencies. He suggested a mandate would be premature, and instead recommended a gradual process of implementation.

Senator Alarcon noted the conflict between state and local power will be a key political issue that needs to be addressed when considering any mandate. He said Governor Davis has indicated he has strong respect for local rights, so it may be very difficult to convince him a mandate is essential from the state's perspective. Rather than working toward the goal of a mandate, Senator Alarcon suggested the manufacturers focus on a strategy of gradually moving toward full implementation. He clarified that he supported use of shutoff valves but did not want to diminish the end result. He advocated proceeding slowly in making any policy decision on the issue.

Senator Alarcon asked Mr. Anderson whether he supported a mandate. Mr. Anderson first disputed some of the contentions made by Mr. Vermeulen about the performance of excess flow valves. He clarified that spring-and-ball technology is not as sensitive as magnetic technology. He added that a gas line does not need to break completely to trigger the shutoff valve. In response to Senator Alarcon's question about the mandate, Mr. Anderson stated his company would support anything that makes gas safer, possibly including seismic shutoff valves. Senator Alarcon encouraged Mr. Anderson and Mr. Vermeulen to work together to develop a program

they both could support. He recommended looking at tax incentives, local versus state control, and existing ordinances.

Mr. Vermeulen said his industry was committed to working as a united front. He agreed with Senator Alarcon about the importance of educational outreach and a phased approach. He invited the Seismic Safety Commission to assist in these efforts.

Commissioner Adelman questioned whether a uniform statewide approach would be appropriate, given the existence of Zone 3 and Zone 4 in California. He noted that distinctions were made between Zone 3 and Zone 4 in Los Angeles' URM ordinance. As a representative of a local building department, Commissioner Adelman agreed with Mr. Vermeulen that it would be better to require installation before the close of escrow at the time of the sale rather than up to a year later.

Commissioner Chang observed that in the major earthquakes in California, including the 1971 San Fernando earthquake, the 1994 Northridge earthquake, and the earlier earthquake in Santa Barbara, many residences suffered damage as a result of foundations shifting, and the problem was especially acute in mobilehomes. In many cases, fires resulted from breaks and leaks in gas supplylines. For this reason, Commissioner Chang argued it made sense to have valves installed in supply lines rather than individual dwellings.

Mr. Vermeulen explained that if an earthquake is not strong enough to break the main service line, but strong enough to cause leaks in a house, a valve in the supply line would not achieve the desired purpose. On the other hand, a device for each structure would react to strong ground motion at that site.

Commissioner Patwardhan asked whether the manufacturers have noticed any reluctance on the part of homeowners to install shutoff valves. Mr. Vermeulen responded that most people are not aware the valves are available. He noted the Los Angeles ordinance mandating installation of gas shutoff valves, although limited in its scope, has helped increase public awareness.

Commissioner Johnson asked if the manufacturers were aware of any studies supporting use of a specific magnitude threshold for EQVs. He noted a statewide mandate might not be necessary if the threshold is sufficiently high. Commissioner Johnson requested more data on the performance of gas lines in earthquakes and an analysis of the types of facilities where breaks occurred. He said this information could be useful in identifying specific structures or facilities for priority valve installations. Mr. Vermeulen said he would attempt to gather whatever studies are available. Commissioner Johnson added that similar written data would be helpful from the other speakers making presentations on this issue.

In addition to a 5.4-magnitude threshold, Commissioner Clark recommended taking other factors that affect motion into account. He said he shared Commissioner Johnson's concerns about setting thresholds either too high or too low. Mr. Vermeulen stated the State Architect currently has responsibility for approving valves in California, and he recommended addressing the issue of the appropriateness of that authority. He said the 5.4-magnitude threshold is another issue for further consideration.

Southern California Gas Company

Chairman Manning welcomed Mr. Robert M. Dowell, Director, Distribution Services, Southern California Gas Company, and invited him to address the Commission.

Mr. Dowell said SoCal Gas is the nation's largest distributor of natural gas, serving 5 million meters through a 44,000-mile natural gas distribution system covering 23,000 square miles. Recognizing that a significant portion of the company's infrastructure operates in areas subject to earthquakes, SoCal Gas' first priority has

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always been the safety of its customers, and significant amounts of money have been spent to upgrade and improve the distribution system so it can function safely and efficiently.

Mr. Dowell noted that strapping the water heater is the single most important step a customer can take to prevent fire damage during earthquakes. Some customers gain additional peace of mind by installing earthquake shutoff valves, and SoCal Gas supports their right to choose this type of protection. Mr. Dowell stated that SoCal Gas filed an application and received CPUC approval in 1995 to initiate a seismic valve pilot program. In that program, SoCal Gas offered both a subscription service, with the company retaining ownership of the valve, and a sales service, with the equipment purchased by the customer and installed by SoCal Gas.

About a year later, Mr. Dowell noted, SoCal Gas requested that the pilot program be replaced with a new tariff program based on the lessons learned in the pilot program. Under the new service, SoCal Gas abandoned its subscription program and implemented a new program for customers to purchase valves from outside manufacturers. Customers would then have the option of contracting with SoCal Gas or some other qualified contractor for the installation. In September, 1996, the CPUC approved SoCal Gas' application to offer services to install shutoff valves purchased by customers from outside sources; to offer services to remove valves and restore service after a valve has tripped; and to allow qualified contractors to install valves on SoCal Gas' side of the meter, subject to certain conditions. In 1998, SoCal Gas filed an application to modify the program to strengthen contractor qualifications. As part of that effort, SoCal Gas instituted inspections of contractor installations and began charging inspection fees.

Mr. Dowell said a recent court decision determined that SoCal Gas is responsible for complying with all safety regulations and codes for work done by outside contractors on SoCal Gas' side of the meter. In response, SoCal Gas filed an application last July seeking to discontinue installation of customer-owned shutoff valves on the company's side of the meter. Mr. Dowell pointed out that customers may still install valves on their side of the meter. He said about 82,000 earthquake valves have been installed on SoCal Gas' side of the meter, 46,000 of which are located within the City of Los Angeles.

In terms of the valves themselves, Mr. Dowell said SoCal Gas has expressed concern regarding the super-sensitivity of some devices, which can be activated by heavy trucks nearby. He recommended that manufacturers develop a valve that automatically resets itself after being activated by an earthquake, while at the same time monitoring the pipeline to verify that no leaks or breaks have occurred. Mr. Dowell noted enhanced technology, improved valve bracing requirements, and proposed changes to standards of earthquake-activated shutoff devices have helped reduce some of SoCal Gas' concerns. He added the company supports the proposed new ASCE standards.

Mr. Dowell observed that the number of earthquake-activated valves in SoCal Gas' territory is increasing, and the proliferation of these devices gives rise to some new concerns. The time and effort to restore service and reset valves after major earthquakes needs to be taken into consideration, because gas is essential for providing heat and power for customers when water and electricity may not be available.

Mr. Dowell reported that approximately 151,000 customers experienced gas outages after the Northridge earthquake. Within 21 days, gas service had been restored to over 119,000 of those, and the remaining 22,000 restored their own gas service or had a plumber do so; service could not be restored to 9,000 customers because of structural property damage. Mr. Dowell noted that if a large number of earthquake valves had been installed in the area prior to the Northridge earthquake, it is likely restoration of service would have taken much longer. Studies indicate that it would have taken 60 to 90 days to restore service to approximately three million

customers with valves. In addition, aftershocks could reactivate the devices, causing additional delays in restoring service.

Mr. Dowell said SoCal Gas acknowledges that valve technology is continually improving, and the resetting process is becoming easier for customers. However, SoCal Gas believes installation of large numbers of earthquake shutoff devices is not necessary, given the low probability of fires caused by leaking gas lines. Mr. Dowell added that SoCal Gas' position has always been that the more crucial safety problem is unstrapped or poorly secured water heaters in single-family and mobile homes that are not secured to their foundations. SoCal Gas is also concerned about whether an increasing number of earthquake valves will impose additional costs on the utility and its ratepayers, with no real benefit other than the perceived peace of mind condition. SoCal Gas worries that a very large number of earthquake valves installed within the service territory could significantly impact customer service obligations.

Mr. Dowell stated that SoCal Gas continues to support its customers' right to choose to install earthquake shutoff devices, but SoCal Gas recognizes installation of these valves is one of many steps customers can take to secure their property in the event of an earthquake. He said the company will continue to work with state and local government agencies to address these concerns.

Commissioner Johnson observed that two causes of fires after earthquakes are improper bolting of structures to their foundations and failures of water heaters. He asked if utility companies were aware of other problems that caused gas leaks and subsequent fires that retrofit would help correct. Mr. Dowell said he was not aware of other identified causes. He said SoCal Gas keeps information on leaks and outages, but not necessarily on specific causes of fires. Commissioner Johnson explained that he would be reluctant to impose a statewide mandate if the problem can be addressed in part by retrofitting.

Commissioner Shapiro noted Mr. Dowell's presentation focused on residential gas installations. He asked about requirements for commercial users as well. Mr. Dowell said SoCal Gas would take the same position of supporting the customer's right to install a valve.

Commissioner Adelman said he understood Mr. Dowell had stated that SoCal Gas does not recommend mandatory seismic gas shutoff valves. Mr. Dowell responded that the company would prefer to view each installation on a case-by-case basis rather than deal with a general mandate. He clarified it would be incorrect to make a broad statement at this time that the company was opposed to mandates.

Commissioner Adelman noted that SoCal Gas has made a decision to abandon their program of installing valves on their side of the meter. He commented that the City of Los Angeles has been successful in getting gas shutoff valves installed on the utility side of the meter, and removing that option would diminish the effectiveness of the program. He estimated that Los Angeles has approximately 40,000 to 45,000 privately owned meters and about 46,000 on the utility side.

Senator Alarcon observed that the gas company had been opposed to gas shutoff valves until they began producing their own devices for sale. He pointed out that utility companies would probably support a mandate that led to increased profits on their side and would oppose one that increased their costs.

Mr. Dowell noted that the recent court decision attributing liability to SoCal Gas for work done on their side of the meter was the key factor in determining the company's position.

Commissioner Snyder commented that the gas company's position appeared to be based on fiscal concerns related to restoring service, but little was said about safety. She said fire is her biggest fear after earthquakes,

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and that concern is shared by many Californians. She expressed disappointment that SoCal Gas made a business decision rather than a safety decision.

Chairman Manning thanked Mr. Dowell for his presentation. He suggested taking Councilman Bernson's presentation out of order to accommodate his schedule.

City of Los Angeles (Out of Order)

Chairman Manning introduced and welcomed Hal Bernson, Los Angeles City Councilman and former Seismic Safety Commissioner.

Councilman Bernson said he first learned of gas shutoff valves when he visited Japan in 1982 and saw a ball-and-cup device in a private residence. Upon returning, he began investigating the possibility of using valves as a safety measure for the City of Los Angeles and the state as a whole. Councilman Bernson noted that a major deterrent to using the valves at that time was a rigid state code requiring the devices to be sensitive to very small ground movements. Since then, the standards have been changed to a higher gravity displacement factor. Councilman Bernson added that the issue of allowing installation within a year after sale was the result of a compromise with the real estate industry.

Councilman Bernson asked Commissioner Adelman about the ordinance compliance statistics. Commissioner Adelman responded that it is difficult to track current compliance because of the built-in twelve-month lag; however, on transactions done over a year ago, he estimated the compliance rate is between 50 to 80 percent. Councilman Bernson expressed his opinion that gas shutoff valves are critical to seismic safety. He noted numerous gas leaks were discovered after the Northridge earthquake, and the likelihood of fire would have increased dramatically without valves.

Councilman Bernson observed that the City of Los Angeles imposed a URM retrofit mandate in the early 1980's, and then a gas shutoff valve mandate more recently, and both measures have been effective in saving lives and minimizing structural damage. In spite of their proven effectiveness, similar mandates have not been enacted on a statewide basis.

Councilman Bernson recommended taking a first step toward statewide protection by enacting new amendments to the Uniform Building Code for all new construction and major remodeling projects. He suggested adopting tax credits as an incentive for compliance.

Councilman Bernson expressed hope that SoCal Gas will reconsider its decision to abandon installations on the utility side of the meter. He urged the Commission to take a strong stance supporting more widespread use of gas shutoff valves.

Senator Alarcon pointed out that URM retrofits can address seismic issues in one project, but use of gas shutoff valves involves a behavioral process that affects utilization and effectiveness of the devices. He noted that senior citizens and disabled people, for example, need to be able to reset their devices easily. He emphasized the need to ensure proper utilization. Councilman Bernson agreed and added that valves can help prevent fires even if they are hard to turn on later. He pointed out the benefit to public safety outweighs their inconvenience. For this reason, he suggested, the government might be able to absorb some of the costs.

Senator Alarcon commended Councilman Bernson for his strong stance supporting seismic safety. He noted his opinions may not be popular in this era of term limits, and he praised Councilman Bernson for his dedication to this cause.

Councilman Bernson said he was pleased to see Senator Alarcon's participation on the Seismic Safety Commission, and he thanked him for his efforts.

Commissioner Chang expressed concern about the effectiveness of earthquake-activated shutoff valves. He noted peak acceleration, frequency, and duration vary with ground motion, so the valve triggers should be based on these factors as well. Commissioner Chang recommended testing gas shutoff valves on shake tables.

Councilman Bernson said Los Angeles' current valve requirements are based on acceleration. He added that all City-certified valves are tested.

Commissioner Chang noted that in response to the 1989 Loma Prieta earthquake, Governor Deukmejian proposed legislation for a mandatory earthquake insurance requirement but the Legislature ultimately approved a voluntary insurance program. Commissioner Chang expressed concern about public resistance to state mandates. Councilman Bernson agreed. He noted the ultimate decision will not rest with the Seismic Safety Commission, but with the Legislature and Governor. He urged the Commission to take a strong stance supporting a mandate, with the understanding that political compromises may be necessary to move forward.

Chairman Manning thanked Councilman Bernson for his leadership in seismic safety and his advice and information.

Pacific Gas and Electric

Chairman Manning welcomed Dr. William "Woody" Savage, Senior Seismologist, Geosciences Department, Pacific Gas and Electric Company, and invited him to address the Commission.

Dr. Savage introduced his associate, Mr. Paul Brooks, Senior Gas Engineer, Gas Distribution.

Dr. Savage said PG&E's plan to improve gas safety in earthquake-prone areas involves clearly defining goals of life safety and prevention of property damage, identifying safety issues and alternative actions based on valid information, and providing mechanisms to encourage implementation of the best alternatives.

Dr. Savage displayed a chart summarizing past earthquake-related fires in the U.S. He noted two primary causes of these fires have been identified: damage to appliances and other gas-fired equipment, and structural damage to buildings. Damage to appliances and equipment is usually traced to inadequate restraints, weak foundations or lack of or weak flexible gas line connections. Structural damage to buildings can cause gas leaks and damage to meter from collapse of walls and foundations.

Dr. Savage noted life safety risks tend to come from fires following earthquakes or improper restoration of gas service. Fires in multi-unit, multi-story residential structures, especially those built under old code provisions, have the highest life safety risk.

Dr. Savage showed a diagram of a gas meter to clarify ownership responsibility between the utility company and the customer. He noted the meter set, pressure regulator, shutoff valve, and service tee are the utility's responsibility. His presentation also indicated that the piping and gas devices downstream of the service tee are the customer's responsibility.

Dr. Savage reviewed PG&E's program to improve earthquake safety. He said PG&E has embarked on a gas pipeline replacement program, established gas emergency shutdown zones, developed emergency and response plans, addressed maintaining facilities in safe condition, and arranged for customer services to ensure safety. In terms of how customers can improve gas safety in their facilities, PG&E has identified the following alternatives: public education and awareness; improving building structural integrity for earthquakes; ensuring appliance integrity for earthquakes resistance; installing motion-activated gas shutoff valves, excess flow

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valves, and methane detectors and alarms; use of hybrid gas safety systems; and gas service shutoff valve wrenches.

In terms of analyzing the state's policy alternatives, Dr. Savage recommended developing a strategy for earthquake retrofitting and safety device installation. He noted the strategy should have two goals, preventing hazards and responding to hazards. He suggested targeting the most vulnerable situations, such as multi-family, multi-story residences built to older building codes, unanchored appliances, and rigid gas connections to appliances. Dr. Savage emphasized that extensive public education is needed to recognize safety hazards and identify effective mitigation alternatives.

Dr. Savage commented that a number of tradeoffs may have to be made in the process of arriving at a balanced state policy. It may not be possible, for example, to target the highest risk structures, keep costs reasonable and effective, improve safety, or have policies go into effect soon enough. In working toward the ultimate goal of seismic gas safety, Dr. Savage recommended that the Commission focus on preparing public information regarding risks, alternatives, and decision-making guidance. In addition, he suggested establishing a work group to gather information on the seismic risks of natural gas, analyze implications of alternatives, and identify appropriate policy actions. Dr. Savage added that PG&E is committed to working with the Commission in its investigation of this issue.

Commissioner Adelman asked if PG&E's presentation implies there is little or no risk of a gas break in a building constructed to modern code. Dr. Savage confirmed that modern earthquakes have verified that outcome. Commissioner Adelman asked where gas leaks are likely to occur in modern dwellings. Dr. Savage responded that no systematic failure points have been identified.

Commissioner Snyder pointed out that the chart summarizing past earthquake fires does not reflect the fact that many buildings can be involved in a single fire, and sometimes entire blocks of buildings are threatened by one ignition point.

Commissioner Chang expressed concern about corrosion of gas pipelines resulting in weakening and breaks during earthquakes. He noted this problem was observed following the earthquakes in Northridge, Kobe, and Taiwan. Commissioner Chang noted corrosion of both gas and water pipes has been identified throughout the San Fernando Valley. He added that corrosion can be attributed to soil problems, including soil resistance, acid content, salt content, and high levels of groundwater. Commissioner Chang asked if PG&E has taken any steps to prevent corrosion and protect pipes.

Dr. Savage responded that PG&E prevents corrosion protection by using either cathodically protected steel or plastic pipe. In addition, periodic surveys identify leaks in the system, and weak or leak-prone pipes are replaced or relined. Dr. Savage added there seems to be no reason to use soil characteristics to prioritize pipe replacements.

Dr. Savage clarified there were no pipeline breaks or gas fires in Turkey's plastic gas distribution system; however, some pipes were damaged due to buildings collapsing. He said Taiwan has a fairly modern gas distribution system, and damage was concentrated along the extensive fault rupture zone and in soft ground.

Senator Alarcon said he recently heard that Turkey is expanding gas operations and is requiring gas shutoff valves for all new service locations.

Commissioner Chang noted a recent gas line break occurred because a construction crew did not know where the gas pipe ran and inadvertently damaged the line. He asked what utility companies can do to prevent this type of accident. Dr. Savage said backhoe operators are prohibited from digging without first investigating

pipeline locations. In addition, PG&E monitors its pipeline corridors on a regular basis to spot construction and agricultural activities that could affect the pipeline.

Commissioner Shapiro asked whether PG&E has a public education and awareness program for gas shutoff valves. He noted PG&E's suggestions for consumers includes a gas shutoff valve wrench; instead of using these difficult control mechanisms, he questioned why the utilities would not use a simpler handle that could be used without a wrench.

Dr. Savage responded that PG&E produces informational brochures and provides advice to consumers regarding emergency situations. He said customers would benefit from additional information on mitigation alternatives. Commissioner Shapiro suggested that a simple lesson regarding how to light a pilot light might be most practical in terms of immediate safety benefit. Dr. Savage pointed out there are significant differences in individuals' abilities as well. He noted PG&E's policy has been to offer pilot light relighting as a service to its customers rather than training people to restore service themselves. Dr. Savage noted many seismic gas shutoff valves were tripped in the Kobe earthquake, and over 50 percent of those customers opted to have the gas company restore their service.

Commissioner Patwardhan thanked Dr. Savage for his summary of options available for consumers to improve seismic safety, and he asked if any of these measures were currently being provided by PG&E. Dr. Savage explained that PG&E supports customer decisions on safety and encourages consumers to take responsibility for their own safety, but the company does not recommend what actions to take. Similarly, PG&E encourages customers to strengthen their structures, but the company does not advise how the strengthening should be accomplished.

Commissioner Patwardhan asked about PG&E's position on the issue of whether gas shutoff valves should be required. Dr. Savage responded that PG&E encourages its customers to make their own choices.

Based on his fire background, Chairman Manning attested to the serious risk to life and safety from fires following earthquakes, and he cautioned against minimizing the danger. Dr. Savage clarified that PG&E is committed to preventing fires, understanding hazards and causes, and reducing the extent of damage from fires.

Senator Alarcon commented that releasing utility companies from liability would probably make them more supportive of using gas shutoff valves. Dr. Savage recognized that liability was a key concern. Senator Alarcon asked if utility companies gather information on the type and location of valve installations. Dr. Savage said PG&E currently does not collect that kind of data, but he expressed a willingness to make that information available if it can be compiled. Commissioner Snyder observed that the lack of information after Northridge made it difficult to evaluate their effectiveness, and she encouraged the utility companies to gather this kind of data.

City of Los Angeles (Continued)

Update on Los Angeles' Mandatory Valve Installation Ordinance

Commissioner Adelman welcomed Mr. James Nishimoto, Chief, Mechanical Engineering Section, Department of Building and Safety, City of Los Angeles, and Mr. Larry Soskin, Chief Plumbing and Mechanical Inspector.

Mr. Nishimoto said the purpose of his presentation was to provide information on Los Angeles' current gas shutoff valve ordinance, including its purpose, affected buildings, product approval requirements, installation, and implementation results. He noted that after the Northridge earthquake, Los Angeles and other jurisdictions worked to develop new code requirements to address seismic safety issues, and one of those areas was gas

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shutoff valves. After much discussion and with strong support from Councilman Bernson, then-Councilman Alarcon, and others, an ordinance was passed requiring gas shutoff valves for certain situations.

Mr. Nishimoto explained that the purpose of the ordinance was to address gas safety issues and protect buildings from fire due to gas leakages after earthquakes. Under the ordinance, earthquake valve installation is required for any new building constructed after September 1, 1995. Existing buildings, both commercial and residential, undergoing remodeling projects exceeding \$10,000 are also required to install valves. The remodeling provisions became effective for commercial buildings in 1995 and for residential buildings in 1998. The ordinance also requires all buildings sold after February 5, 1998, to install gas shutoff valves within one year from the date of sale.

Mr. Nishimoto reviewed the product approval process. Valves to be installed in the City of Los Angeles require department approval, which is based on the following requirements: a thirty-year warranty; lifetime maintenance; compliance with trip criteria; endorsement by an approved testing agency; and certification by the State Architect.

Mr. Nishimoto asked Mr. Soskin to address installation issues.

Mr. Soskin stated that seismic shutoff valves in Los Angeles can be installed on either side of the gas meter. If installed on the customer side, a permit and inspection are required. If installed on the utility side, permits and inspections are not required. In either case, Mr. Soskin said, valves must be rigidly mounted to the building so the valves move as the building moves.

Mr. Soskin noted the City of Los Angeles spent considerable time crafting and refining the ordinance. He said about 46,000 have been installed so far, and the department is continually working to streamline the implementation process.

Commissioner Shapiro asked who is responsible for lifetime maintenance of the valve, as required in Los Angeles' ordinance. Mr. Nishimoto explained that the property owner, as owner of the valve, has maintenance responsibility. Commissioner Shapiro asked how the provision is enforced. Mr. Nishimoto responded that there is really no enforcement at the present time.

Commissioner Clark asked if both earthquake-activated and excess flow valves are covered by the ordinance. Mr. Nishimoto said excess flow valves are not included in the ordinance and do not qualify as seismic gas safety valves; he added that excess flow valves can still be installed voluntarily. Commissioner Clark asked if the department maintains records on the number of times valves trip falsely, and Mr. Nishimoto responded that the department does not maintain those statistics.

Commissioner Haggerty asked about outreach to low-income people in older homes to help them understand and comply with the ordinance. He also asked if the City of Los Angeles subsidizes the implementation of shutoff valves for low-income residents. Mr. Nishimoto said the City does not have such a program currently, but the fire department may be able to provide assistance in that direction.

Commissioner Adelman expressed disappointment with SoCal Gas' decision to curtail their program of installing valves on their side of the meter. He noted that in addition to the 46,000 valves that SoCal Gas installed in Los Angeles, another 36,000 were installed in other SoCal Gas territories, and many of those may have been on the utility side as well.

Chairman Manning thanked Mr. Nishimoto and Mr. Soskin for their presentation.

Los Angeles Fire Department

Chairman Manning thanked the Los Angeles Fire Department for providing an opportunity the previous day to for the Commission to view areas affected by the 1971 and 1994 earthquake damage.

Assistant Chief Dean Cathey, Los Angeles Fire Department, expressed appreciation to the Commission for allowing the Fire Department to discuss its observations and concerns. He said he welcomed the opportunity to discuss the fire prevention perspective on the efficacy of gas shutoff valves and whether they should be mandated. Assistant Chief Cathey attested to the concern of fire prevention agencies regarding the serious danger of gas fires after earthquakes. He added that he visited Coalinga immediately following the earthquake in 1983 and recognized that the only effective way to prevent the spread of a major fire, given the inadequacy of the water supply, was bulldozing adjacent buildings. In the Northridge earthquake, he noted, roughly 172 mobile homes were damaged or destroyed as a result of a gas fire.

Assistant Chief Cathey said that in major earthquakes, local fire departments will be inundated with calls for help, and resources are directed toward the highest priorities. Firefighting efforts are hampered by transportation and accessibility obstacles, and lack of adequate water supply exacerbates the problem. Assistant Chief Cathey added that high winds during certain seasons of the year are an additional complicating factor. He stated that fire departments support use of gas shutoff valves as an important tool, as are fire sprinklers, smoke detectors, and extinguishers, in helping to prevent loss of lives and property. Assistant Chief Cathey noted the Los Angeles Fire Department supported Councilman Bernson's efforts to enact the current ordinance and supports its continuing implementation. He said the department has not yet taken a position on a statewide mandate pending further information on how the program would be implemented. He added that many local agencies will have difficulty if a statewide mandate is imposed without a funding source.

Commissioner Chang noted that fire departments in Kobe experienced a number of problems in the earthquake, including collapse of roadways, debris obstructing traffic, and small water tank capacity. He said Taiwanese officials complained of inadequate funding for fire prevention before their earthquake. He asked if California had similar problems. Assistant Chief Cathey responded that the fire department could certainly use additional funds to expand programs, and he questioned how new programs will be established given current budget constraints.

Commissioner Clark asked Assistant Chief Cathey if he concurred with Dr. Savage's point that multi-family, multi-story buildings are the highest risk for fires. Assistant Chief Cathey responded that the department has not conducted a detailed analysis of the structural problems or causes of the fires. He emphasized that the fire department was inundated with calls. He added that the department has some information, but detailed statistics were not being kept during the immediate response period.

Chairman Manning noted the Seismic Safety Commission sponsored a bill, AB 880, that was approved by the Legislature but vetoed by the Governor due to lack of funding, that would have facilitated purchase of translation equipment for radio communications among responders. He said he understood the Los Angeles Fire Department had obtained such a device, and he asked about its operation. Assistant Chief Cathey said the department is close to having full translation capability soon, with training occurring within the next month. He added that the department will have four mobile units that will be deployed at the dispatch center in each major region. He estimated implementation will be completed in early 2001.

Commissioner Snyder pointed out that all citizens need to realize their local fire departments are focused on fighting fires during emergencies as well as providing emergency first aid. These tasks usually leave no time to

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provide other assistance for injuries, search and rescue, and other emergency operations that need to be performed.

Chairman Manning thanked Assistant Chief Cathey for the presentation and commended the Los Angeles Fire Department for their efforts.

American Society of Civil Engineers

Mr. Douglas G. Honegger, Chair, Lifeline Standards Council, American Society of Civil Engineers, said the purpose of his presentation was to explain what was done in rewriting the standard for earthquake-actuated gas shutoff valves, and to give a brief history of what existed prior to the standard, 1991-92 evidence that led to a decision to update the standard, and the results of a research program looking at shutoff valve performance and vibratory motion specifications.

Mr. Honegger said the original standard for earthquake-activated valves was developed in 1981. The Whittier earthquake produced new evidence on leak rates and damage to appliances, hoses and joints. In some cases, there was information regarding earthquake valves that had been activated, and utility companies noticed that valves tripped a long distance away from the damage that occurred in Whittier. Then, after the Northridge earthquake, there was new information on causes of damage, fires, and ground motion that were incorporated in a revised version of the standards. The current standards cover flow capacity of devices as well as mounting requirements.

Mr. Honegger reported that FEMA, the utility companies, and valve manufacturers funded a \$164,000 research program to test existing devices to the old standard and earthquake ground motions, analyze available data on gas valve actuation and causes of fires, and develop a proposed new standard.

Mr. Honegger displayed a map illustrating the approach used to analyze ground motion data from the Northridge earthquake. He pointed out the symbols indicating known gas shutoff valve locations and fire locations. Mr. Honegger said that by correlating ground motion data with the onset of fires, test requirements were established for the new standards. He noted the red line on the map indicates an envelope where gas valve activation occurred in the Northridge earthquake, and the black line shows strong ground motion.

Mr. Honegger summarized the statistics derived from the analysis of the Northridge earthquake. He noted there were 590 fire incidents that day, 345 involving buildings, of which 97 were related to the earthquake. FEMA reported receiving about 700,000 reimbursement claims for gas appliances, of which 400,000 involved water heaters; unfortunately, FEMA did not record the amount of damage for each claim. Based on data from the Los Angeles Fire Departments, Mr. Honegger noted there were 38 gas-related structural fires, 24 involving single-family dwellings, 5 in multi-units, 4 in apartments, one townhome, 6 mobile home incidents of large damages, and 3 business/commercial installations. He said 24 of the fires were related to gas appliances, 20 from water heaters and 4 involving meter damage where the building's ground motion response caused damage, and 40 of the gas-related fires occurred in the areas of strongest motion.

Mr. Honegger said OES estimated 225,000 wood-frame structures in the Northridge earthquake area. He noted an estimate of the risk can be derived by calculating that about 60 percent of the structures have gas service, and there were 40 gas-related fires in that area. Mr. Honegger added that insurance companies calculate the odds of near-total loss of a building due to structural damage resulting from the Northridge earthquake as one in 225, considerably higher than the risk of gas-related fire (one in 3375.)

In terms of the efficacy of gas shutoff valves, Mr. Honegger reported that the testing process revealed one device that complied with the old standard failed to activate in response to forces at the same level as the

Landers earthquake. He noted there is little information to quantify the relationship between ground motion to shutoff valve closure, as no one tracks the devices, their locations, and their usage. Mr. Honegger said the tests also show most earthquake fires occur in residential wood-frame dwellings; damage to gas appliances is the primary cause of leaking gas; and gas shutoff valves tended to actuate well beyond the zones of gas-related fires.

Mr. Honegger reported that the new standards have new requirements for both actuation and nonactuation capabilities. The standards also provide an appendix of additional information.

Mr. Honegger concluded by emphasizing that gas-related fires are not the most significant source of post-earthquake fires. He urged the Commission to look at the relative risks of fire, collapsed buildings, and prolonged loss of water and utility service. He expressed his opinion that earthquake shutoff valves could be a good mechanism to eliminate or reduce gas leaks in high-risk areas, but other known sources of risk need to be addressed as well. On the other hand, he pointed out that possible drawbacks include long delays in service restoration, the possibility that the mandate will drive people to seek the lowest-cost alternative of complying, and the need to track valve installations to provide better information for policy decisions.

Mr. Honegger recommended allowing different types of earthquake shutoff valves. He also suggested targeting implementation to areas where the risk is greatest.

Chairman Manning observed that some of the statistics are misleading because they do not reflect the magnitude of single fires or how many structures were affected in each. Mr. Honegger explained that the statistics focus on a single ignition incident because gas shutoff valves are designed to prevent ignition from occurring at the initial point. He acknowledged that each incident can grow to have widespread consequences.

Commissioner Clark noted Mr. Honegger indicated that even if there were no gas-related fires after an earthquake, the fire department would be busy responding to fires from other causes. Mr. Honegger said most fires come from other sources, such as electrical fires, flammable liquids, chemical reactions, and kitchen grease.

Commissioner Snyder questioned the comparison of fire to other risks. She noted that collapse of an adjacent building or interruption in utility service does not pose the same level as threat as a fire. She pointed out that fire has so many external consequences that other incidents would not have. Mr. Honegger agreed, but explained that even if a homeowner installs a shutoff valve, there is still a danger of fire spreading from adjacent structures. He added that building collapses pose a higher risk to life safety than some fires.

Commissioner Patwardhan asked how much improvement can be expected from the proposed ASCE 25 changes in terms of performance of devices. Mr. Honegger said he did not have quantitative data. However, he noted the actuation and nonactuation levels are based on conservative qualitative projections. Commissioner Patwardhan expressed concern that deficient valves designed to older standards should be replaced. Mr. Honegger stated that there was no reason to require retrofits of older valves.

Department of General Services, Division of Real Estate Development Services and Division of the State Architect

Chairman Manning invited Mr. Pat Campbell, Department of General Services, Division of Real Estate Development Services and Division of the State Architect, to address the Commission.

Mr. Campbell explained that the State Architect, Steve Castellanos, is responsible for certifying gas shutoff valves. He said his presentation would focus on the regulations that implement the certification program, contained in Title 21 of California Code of Regulations, rather than the standards contained in Title 24. Mr.

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Campbell noted the certification procedures were revised and adopted in June of 2000, and the certification regulations for gas shutoff valves going through the approval process. Meanwhile, standards were adopted on an emergency basis for earthquake-activated and excess flow shutoff valves, and the 120-day public comment period closed October 10.

Chairman Manning thanked Mr. Campbell for the information.

Public Utilities Commission

Mr. Mahendra Jhala, Chief, Utilities Safety Branch, Public Utilities Commission (PUC), said PUC policies are set out in three commission decisions made in 1996, 1998, and 2000, respectively. Mr. Jhala said the 1998 decision allowed SoCal Gas to expand its gas shutoff valve program. The revisions included new contractor licensing designations, insurance requirements, training requirements, and quality assurance provisions. Meanwhile, PUC inspections revealed gas leaks from some of the valve installations, and the staff notified SoCal Gas to make the necessary repairs. This led to a dispute as to whether the utility company or the property owners should be held liable for the problems. A court decision eventually determined that the pipeline company could not pass on the liability to property owners.

Mr. Jhala said that as a result of the recent court decision, the PUC requested SoCal Gas to provide inspection verification for every valve. The utility company, in turn, can request authorization to pass on any increased costs to customers as part of their rates.

Mr. Jhala noted he participates in an organization made up of gas pipeline safety representatives from throughout the U.S., and he made a proposal to the national board to adopt the ASCE standards into the national standards.

Mr. Jhala reported that the PUC in past years had looked into unbundling of the gas industry, including the gas meter system, by allowing private meter suppliers and billers. However, due to concerns about safety, maintenance, and liability, the PUC agreed to table the discussion of unbundling. In response to a request from the federal government, he said, PG&E agreed to provide excess flow valves on a voluntary basis to new installations free of charge, but other utility companies charge for the service.

Regarding use of gas shutoff wrenches, Mr. Jhala noted the PUC regulates and inspects the gas systems in mobilehome parks. He said staff members have noticed that some park operators lack the necessary training and proficiency to turn off the gas supply themselves, so even making the tools available would not solve the problem. He added the PUC offers seminars on gas safety for mobile home park operators as part of its public outreach program.

Mr. Jhala said the federal codes requires all pipelines to be tested and monitored on a regular basis for corrosion and other problems. In addition, there are requirements for operator training. A bill pending before Congress would give even more implementation and enforcement capability. In order to assist utility companies to ensure the safety of their pipelines, electronic measuring devices can be used to pinpoint problems and identify weaknesses. In terms of accidental breakages of pipelines on construction sites, Mr. Jhala observed that existing laws require checking before digging, but not all operators comply. He said the PUC offers monthly seminars to inform the public about digging requirements near pipelines.

Chairman Manning thanked Mr. Jhala for his presentation.

VIII. OPEN COMMENT PERIOD

Chairman Manning asked that speakers limit their remarks to three minutes and avoid repeating others.

Mr. Richard Shaw, Safety Quake Corporation, explained that his company manufactures gas shutoff valves. He said he lived in Fillmore at the time of the Northridge earthquake and his mother lived in a trailer park nearby. Immediately after the earthquake, upon driving to the trailer park, he discovered a major fire was underway, his mother's home had slipped off its foundation, and the gas needed to be shut off. However, many of the elderly and disabled people at the park were incapable of turning the gas off for themselves. He said this situation highlights the importance of having automatic shutoff devices.

Mr. Carl Strand, President, Strand Earthquake Consultants, spoke in support of mandating shutoff valves. He said he has been an active participant in code change proposals, development of new standards, and studies involving valve performance, gas leaks, and utility company responses. Mr. Strand observed that earthquake shutoff valves are designed to protect against a worst-case scenario, or a large earthquake in an urban area during business hours in windy weather. He noted that when SoCal Gas was called out to reset valves at over 800 homes after the Northridge earthquake, gas leaks were found in about 20 percent of the houses.

Mr. Strand recommended that installations be inspected by plumbing officials rather than gas utilities to ensure they conform with the Uniform Plumbing Code. Mr. Strand supported continuing oversight by the State Architect and providing additional funds for inspections and enforcement.

Mr. Strand added that Turkey's relatively good gas system performance during the recent earthquake was partly due to the fact that many buildings had not yet been hooked up to natural gas. Although over 400 propane leaks were discovered, no fires resulted because the propane was not turned on during the summer months.

Mr. Strand stated that Istanbul has enacted a mandate requiring earthquake valves on all buildings with existing gas service plus all new installations.

Mr. Jimmy Hershberger, Sanders Valve, commended the Seismic Safety Commission for its 25-year history of working to protect the lives and property of Californians. He said the valve manufactured by Sanders uses a pressure differential that activates the valve only when the gas line breaks or pressure surges, regardless of the cause; the valve automatically resets itself, but only after all necessary repairs have been made; and only qualified contractors are authorized to install the valve in California. Mr. Hershberger pointed out that the valve provides a measure of safety after earthquakes until utility companies can inspect their lines and restore gas service.

Mr. Kaveh Razavi, Chief Plumbing Inspector, Los Angeles County, spoke in support of gas shutoff valves as a safety device, but recommended not mandating their use. He said Los Angeles County, like many local government agencies, has inadequate staff to review plans and inspect installations of gas shutoff valves. In addition, mandating shutoff valves for older buildings with pilot-light appliances might have limited benefit because of the difficulty many consumers have with relighting pilot lights and resetting the valves.

Mr. Mark Reyman, President, Reyman Laboratory, explained that his company conducts research and development regarding earthquake-activated shutoff valves. He expressed belief that it may be possible to design a valve sensitive enough to shut off after an earthquake if even a small leak is detected and to remain on if there are no leaks. He noted typical triggers of valves are based on either ground motion or acceleration rates during a given time period, and he suggested considering a multiple-factor standard.

Mr. Ryan Embree, Chair, Public Safety Commission, City of Malibu, clarified that he was not representing the City of Malibu in his remarks before the Commission. He requested a copy of the City of Los Angeles ordinance mandating gas shutoff valves, and Commissioner Adelman promised to provide a copy.

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Mr. Embree asked about likely implementation dates for a state-mandated program. He noted the City of Malibu is situated in a high-risk fire corridor, and more than 300 homes in Malibu were lost in a single past fire. He provided his address and asked to receive further information on this issue.

IX. POLICY DISCUSSION REGARDING SEISMIC GAS SHUTOFF VALVES

Chairman Manning proposed finishing the meeting rather than taking a lunch break, and commissioners agreed.

Chairman Manning welcomed input from commissioners on the gas shutoff valve issue.

Commissioner Shapiro expressed appreciation to all the speakers for their presentations. He recommended establishing an ad hoc committee to review, assimilate, and summary key points for the Commission's consideration at a future meeting.

ACTION: Commissioner Shapiro made a motion, seconded by Commissioner Snyder, that:

The Commission appoint an ad hoc committee to review the testimony and information on gas shutoff valves and develop a discussion agenda for the Commission..

* Motion carried, 11 - 0* (Commissioners Alarcon, *, and Mochizuki absent during voting).

Chairman Manning asked Commissioners Moy and Haggerty to serve on the ad hoc committee and report back to the Commission at the December meeting. He recommended contacting Senator Alarcon for his input as well. He charged the committee with working to develop findings and recommendations for the Commission's consideration.

Mr. McCarthy drew attention to the findings adopted by the Commission after its Field Act investigation, and he suggested using that format.

X. MISCELLANEOUS

Commissioner Chang reported that Taiwan recently published two reports on the recent earthquake, and he suggested the staff arrange to obtain copies for the Commission.

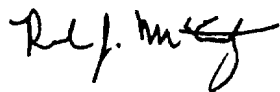
XI. GOOD OF THE MEETING

There were no items brought before the Commission for the good of the meeting.

XII. ADJOURNMENT

There being no further business, Commissioner Chang made a motion, seconded by Commissioner Shapiro, that the meeting be adjourned. The Commission meeting was adjourned at 1:30 p.m.

Approved by:



Richard McCarthy
Executive Director